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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/943,353	08/31/2001	Satoshi Arakawa	Q66023	8693

7590 06/17/2003
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EXAMINER

HANNAHER, CONSTANTINE

ART UNIT	PAPER NUMBER
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2878

DATE MAILED: 06/17/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/943,353

Applicant(s)

ARAKAWA, SATOSHI

Examiner

Constantine Hannaher

Art Unit

2878

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☐ Responsive to communication(s) filed on ____.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-12 is/are pending in the application.
- 4a) Of the above claim(s) ____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) ____ is/are allowed.
- 6) ☒ Claim(s) 1-12 is/are rejected.
- 7) ☐ Claim(s) ____ is/are objected to.
- 8) ☐ Claim(s) ____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on ____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on ____ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. ____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 4.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). ____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: .

DETAILED ACTION**Claim Rejections - 35 USC § 103**

1. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

2. Claims 1-5 and 7-11 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saotome *et al.* (US004943724A) in view of Horikawa (US005099119A) and Takashi *et al.* (US005113078A).

With respect to independent claim 1, Saotome *et al.* suggests a radiation image recording and read-out method corresponding to the illustrated apparatus (Fig. 8) which would comprise the steps of (i) supporting a stimuable phosphor sheet 202 at a position for image recording at which one surface of the stimuable phosphor sheet 202 is exposed to radiation, (ii) exposing the one surface of the stimuable phosphor sheet 202 to radiation from element 11, (iii) performing an image read-out operation by irradiating stimulating rays 221A to the sheet 202 and photoelectrically detecting (with element 227) the emitted light, and (iv) releasing energy remaining on the sheet 20 by irradiating erasing light with an erasing light source 230 in the recited location. Saotome *et al.* does not disclose the locating of a filter on the side of the erasing light source 230 which faces the stimuable phosphor sheet 202. The locating of a filter which has good absorbing properties with respect to the radiation is shown to be useful by Horikawa, which teaches (Fig. 1) lead plate 2 between the stimuable phosphor sheet 1 and the erasing light source 30. In view of the advantageous shielding afforded by the presence of lead plate 2 as taught by Horikawa (column 7, lines 45-51), it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify

the method of Saotome *et al.* to comprise locating a filter which has good absorbing properties with respect to the radiation on the side of the erasing light source **230** which faces the stimuable phosphor sheet **202**. Plainly a lead sheet, notwithstanding its utility in protecting the stimuable phosphor sheet **202** in the method of Saotome *et al.* around wind-up shafts **241** and **242** from stray radiation (in view of the cone of radiation created by element **11**), would not transmit the erasing light from source **230** to sheet **202**. Takashi *et al.* teaches that a lead plate may serve as a radiation shield while also being transparent. Accordingly, one of ordinary skill in the art would have had a reasonable expectation of success that a lead plate as suggested by Horikawa could shield the apparatus from radiation while, in view of the suggestion of Takashi *et al.*, still having transmitting properties with respect to the erasing light.

With respect to dependent claim 2, Horikawa teaches that a filter which transmits only light constituted of light components having wavelengths longer than wavelengths of an ultraviolet region is known (column 7, lines 43-45). Since such a filter prevents the storage of ultraviolet energy in the stimuable phosphor sheet, which improves the image recording and read-out, it would have been obvious to one of ordinary skill in the art at the time the invention was made to ensure that a filter located between the erasing light source **230** and the stimuable phosphor sheet **202** in the method of Saotome *et al.* in accordance with the suggestions of Horikawa and Takashi *et al.* had the recited property.

With respect to dependent claims 3/1 and 3/2, Takashi *et al.* shows that a filter having the recited properties may be made of either recited material (column 2, line 63).

With respect to dependent claims 4/1 and 4/2, the stimuable phosphor sheet **202** in the method of Saotome *et al.* in the embodiment of Fig. 8 is not kept stationary at the position for image recording, nor is the image read-out means **220** located between the stimuable phosphor sheet and

the erasing light source **230**. Nevertheless, the configuration of the apparatus where the stimuable phosphor sheet is kept stationary at the position for image recording is known from Fig. **7A** and in view of the reduced overhang past the edge of the stimuable phosphor sheet **102** (column 12, lines 62-68) it would have been obvious to one of ordinary skill in the art depending on the intended application and the desired performance to use such a configuration instead. Although the illustrated embodiment of Fig. **7A** shows erasing light source **130**, one of ordinary skill in the art would have appreciated that the area-wise illumination afforded by erasing light sources **231** had advantages in the amount of erasing light which may be delivered, for example, and it would have been obvious to place such sources below the image read-out means suggested by the embodiment of Fig. **7A**.

With respect to dependent claim 5, the image read-out means **120** suggested by the embodiment of Fig. **7A** of Saotome *et al.* is of the recited type in view of (a) read out unit **109** and (b) unit moving means **170**.

With respect to independent claim 7, Saotome *et al.* discloses a radiation image recording and read-out apparatus (Fig. 8) comprising (i) an image recording section **210** of the recited type (stimuable phosphor sheet **202** exposed to radiation from element **11**), (ii) image read-out means **220** of the recited type (stimulating rays **221A**, photoelectric detector **227**), and (iii) an erasing light source **230** of the recited type in the recited location. Saotome *et al.* does not disclose a filter on the side of the erasing light source **230** which faces the stimuable phosphor sheet **202**. The presence of a filter which has good absorbing properties with respect to the radiation is shown to be useful by Horikawa, which teaches (Fig. 1) lead plate **2** between the stimuable phosphor sheet **1** and the erasing light source **30**. In view of the advantageous shielding afforded by the presence of lead plate **2** as taught by Horikawa (column 7, lines 45-51), it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the apparatus of Saotome *et al.* to comprise a

filter which has good absorbing properties with respect to the radiation on the side of the erasing light source 230 which faces the stimuable phosphor sheet 202. Plainly a lead sheet, notwithstanding its utility in protecting the stimuable phosphor sheet 202 in the apparatus of Saotome *et al.* around wind-up shafts 241 and 242 from stray radiation (in view of the cone of radiation created by element 11), would not transmit the erasing light from source 230 to sheet 202. Takashi *et al.* teaches that a lead plate may serve as a radiation shield while also being transparent. Accordingly, one of ordinary skill in the art would have had a reasonable expectation of success that a lead plate as suggested by Horikawa could shield the apparatus from radiation while, in view of the suggestion of Takashi *et al.*, still having transmitting properties with respect to the erasing light.

With respect to dependent claim 8, Horikawa teaches that a filter which transmits only light constituted of light components having wavelengths longer than wavelengths of an ultraviolet region is known (column 7, lines 43-45). Since such a filter prevents the storage of ultraviolet energy in the stimuable phosphor sheet, which improves the image recording and read-out, it would have been obvious to one of ordinary skill in the art at the time the invention was made to ensure that a filter placed between the erasing light source 230 and the stimuable phosphor sheet 202 in the apparatus of Saotome *et al.* in accordance with the suggestions of Horikawa and Takashi *et al.* had the recited property.

With respect to dependent claims 9/7 and 9/8, Takashi *et al.* shows that a filter having the recited properties may be made of either recited material (column 2, line 63).

With respect to dependent claims 10/7 and 10/8, the stimuable phosphor sheet 202 in the apparatus of Saotome *et al.* in the embodiment of Fig. 8 is not kept stationary at the position for image recording, nor is the image read-out means 220 located between the stimuable phosphor sheet and the erasing light source 230. Nevertheless, the configuration of the apparatus where the

stimulable phosphor sheet is kept stationary at the position for image recording is known from Fig. 7A and in view of the reduced overhang past the edge of the stimulable phosphor sheet 102 (column 12, lines 62-68) it would have been obvious to one of ordinary skill in the art depending on the intended application and the desired performance to use such a configuration instead. Although the illustrated embodiment of Fig. 7A shows erasing light source 130, one of ordinary skill in the art would have appreciated that the area-wise illumination afforded by erasing light sources 231 had advantages in the amount of erasing light which may be delivered, for example, and it would have been obvious to place such sources below the image read-out means suggested by the embodiment of Fig. 7A.

With respect to dependent claim 11, the image read-out means 120 suggested by the embodiment of Fig. 7A of Saotome *et al.* is of the recited type in view of (a) read out unit 109 and (b) unit moving means 170.

3. Claims 6 and 12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Saotome *et al.* (US004943724A), Horikawa (US005099119A) and Takashi *et al.* (US005113078A) as applied to claims 5 and 11 above, and further in view of Ohyama *et al.* (US004767927A).

With respect to dependent claims 6 and 12, the image read-out means 220 in the apparatus of Saotome *et al.* (even as a unit 120) comprises a line sensor 227 (127) but the stimulating ray source 221 (121) irradiates an area of the stimulable phosphor sheet in a main scanning direction which is linear without being "linear" itself. Ohyama *et al.* shows that a linear stimulating ray source 30 is known (Ohyama *et al.* also shows a line sensor 28). In view of the reduction in the number of moving parts, for example, through the use of a "linear" stimulating ray source as suggested by Ohyama *et al.*, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify the method suggested by Saotome *et al.*, Horikawa, and Takashi *et al.* to

comprise an image read-out unit with a linear stimulating ray source in place of the scanned point source.

Response to Submission(s)

4. This application has been published as US2002/0024031A1 on February 28, 2002.

Conclusion

5. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Constantine Hannaher whose telephone number is (703) 308-4850. The examiner can normally be reached on Monday-Friday with flexible hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David P. Porta can be reached on (703) 308-4852. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9318 for regular communications and (703) 872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0956.

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June 11, 2003


Constantine Hannaher
Primary Examiner